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ABSTRACT

This instructor's guide accompanies the self-paced student training modules on bricklaying available separately as CE 031 568. Introductory materials include a description of the components of the pre-apprenticeship project, discussion of teacher's role in students' completion of the modules, and scope and contents of Phase 2 training. Each of the 23 modules is briefly summarized according to this format: number of new vocabulary words; goal; performance indicators; overview and suggestions; description of any assignment(s) and/or job sheet(s) and listing of materials, tools, and equipment necessary to complete them; and supplementary references. An annotated bibliography contains references for further study and/or clarification of a topic. (YLB)

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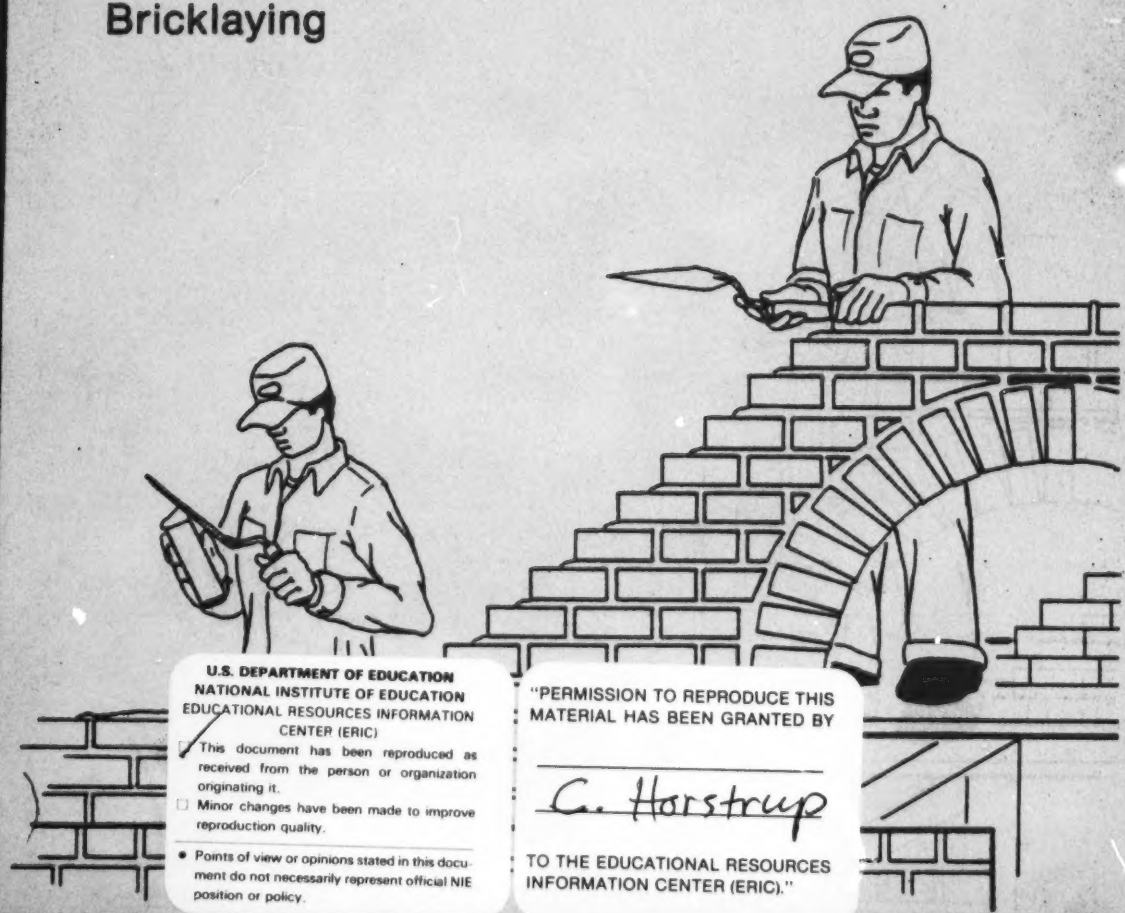
LANE COMMUNITY COLLEGE

PRE-APPRENTICESHIP

PHASE 2 TRAINING

Instructor's Guide

Bricklaying



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Office of the President

July 27, 1981

On behalf of Lane Community College, I wish to express our pride and gratitude for the opportunity to participate in the development of the Pre-Apprenticeship training materials. We also wish to commend the Oregon Department of Education for its original concept and continued support; and, the Educational Linkages Component of the CETA Governor's Grant for funding.

The goals of this project are many, but none are more important than that of producing valid, understandable vocational curriculum material. We congratulate the tradespeople and production staff for thier accomplishments.

Finally, I recommend this material to anyone exploreing Pre-Apprenticeship as an entry into the vocational work world, with the hope and belief that it will go a long way toward producing skilled craftspeople who are dedicated to their work.

Sincerely,

Eldon G. Schafer

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Phase II

INTRODUCTION

This is the second phase of a designed multi-phase project of pre-apprenticeship study. Phase II begins in earnest the development of manipulative skills essential to the trade. It re-introduces and elaborates on many of the tools, materials and equipment set forth in Phase I, and introduces projects and assignments designed to build trade knowledge and trade manipulative skills.

The project consists of three major components:

1) INSTRUCTOR'S GUIDE, containing a brief summary of each of the trade modules, including the materials, tools and equipment necessary to complete the Job Sheets and/or Assignments; an annotated bibliography for further study and/or clarification of a topic.

2) Self-paced LEARNING MODULES for student study. The modules are designed to impart trade knowledge and skills to the student. Each module is comprised of the following:
   a) Cover Sheet--lists module title, goals, performance indicators
   b) Study Guide--gives directions for completion of module
   c) Introduction (optional)--explains why the module is important
   d) Vocabulary--lists and defines any new trade terms or technical words necessary for understanding the module's content
   e) Supplementary References--details where to go for further study
   f) Information--provides information and graphics covering the module's topic(s)
   g) Self Assessment (optional)--provides students an opportunity to test their comprehension
   h) Assignment (optional)--enables students to research further into the topic
   i) Job Sheet (optional)--lists materials and tools necessary to complete the tasks which are designed to develop manipulative skill
   j) Post Assessment (optional)--enables the instructor to test student comprehension

3) SURVIVAL or COPING SKILLS MODULES have been developed to promote

social skills development. These 43 modules elaborate on the topics introduced in Phase I and cover such topics as: Losing your Driver's License, Death in the Family, Divorce, Time Management, Buying a Home, Maintaining Credit, and other social skills which have a bearing on the quality of work life and personal satisfaction.

IMPLEMENTATION

It is essential during Phase II that the student develop the skills necessary to perform the tasks of the trade as outlined and demonstrated in the modules. For this reason, the instruction should be conducted by a skilled craftsperson from the trade or occupation who has the necessary teaching skills.

At the completion of Phase II, the trainee will have enough experience with the occupation to decide whether to continue with the training into Phase III, which will ultimately represent a career choice and entrance into apprenticeship.

Recommendations for successful module completion

This phase of pre-apprenticeship study requires the student to develop job skills which will enable him or her to be a productive worker or to decide against pursuing the trade as a viable career choice. To that end, the instructor should:

1) Realize that skill-building and development is dependent on repeated physical performance and self-confidence.

2) Provide a setting in which students are encouraged to develop skills at their own individual pace. Assessments are designed as tests of comprehension, not as tests of skills or trade abilities.

3) Coordinate the use of materials, tools and equipment so that each student can fulfill his or her potential.

4) Ensure that each student practices the trade skills in the accepted manner, and practices enough to develop skills to a professional trade standard.

5) Make arrangements for visitations (to stores, shops, jobsites, etc.) and ensure that students participate fully.

6) Grade or comment on individual Assignments and Assessments, to ensure students are aware of their progress.

7) Ensure that the trade skills and knowledge presented in one module are fully understood by the student before allowing him or her to continue to subsequent modules.

SCOPE

Trades developed for study in Phase II include:

Drywall	Bricklaying
Painting	Parts Counter
Plumbing	*Electrical
Floor Laying	*Welding
Plastering	*Auto Mechanic
Cement Finishing	*Carpentry
Tilesetting	

* Adapted from previously developed ILS material.

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MODULE TITLE: Mixing Mortar for Bricklaying

NUMBER IN SERIES: 1st of 23

NEW VOCABULARY WORDS: 0

GOAL: The student will be able to mix mortar to a proper consistency for different types of construction.

PERFORMANCE INDICATORS: The student will mix mortar and will complete a Self and Post Assessment and a Job Sheet.

OVERVIEW AND SUGGESTIONS: The mortar made in this section will be wasted unless combined with Module 2 and 3. The Job Sheet should be executed outdoors. When it is not possible to do outdoors, a large tarp to mix on will aid in clean up.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to mix a batch of type "M" mortar. Requires:

water
one cubic foot measuring box
shovel
machine mixer or mortar box and hoe
cement
lime
sand

SUPPLEMENTARY REFERENCES:

The New Book of Knowledge. pp. 391-394.

I.M.A.T. Brick and Block Construction. pp. 19-28.

MODULE TITLE: Applying Mortar

NUMBER IN SERIES: 2nd of 23

NEW VOCABULARY WORDS: 5

GOAL: The student will be able to apply mortar skillfully to different types of masonry units.

PERFORMANCE INDICATORS: The student will practice applying mortar and will complete a Self and Post Assessment.

OVERVIEW AND SUGGESTIONS: Until the student becomes skillfull at applying mortar it can be rather messy. This module should be done outside or over a tarp for easier clean up. Use sawhorses or something to rest the lumber on so it is approximately waist high. Lumber should be dry and smooth. This module may be combined with Module 1 and 3 to reduce waste of material.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to apply mortar on lumber as he or she would on brick or block. Requires:

water, one cubic foot measuring box, shovel, machine mixer or mortar box and hoe, cement, lime, sand, trowel, mortarboard, bricks (25 to 30), blocks (15 or 20), 2" X 4" and 4" X 8" pieces of wood about 8' to 10' long.

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. pp. 29-44.

MODULE TITLE: Jointing and Brushing

NUMBER IN SERIES: 3rd of 23

NEW VOCABULARY WORDS: 4

GOAL: The student will be able to joint and brush brickwork and will also identify different types of joint finishes and tools.

PERFORMANCE INDICATORS: The student will complete a Job Sheet, a Self and Post Assessment.

OVERVIEW AND SUGGESTIONS: The Job Sheet should be completed outside or over a tarp. Leveling and plumbing is not important in this module. Students should be instructed to try to keep joints 3/8" and even. After Job Sheet is completed, walls should be torn down and all mortar removed. Bricks may then be used in later modules.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to construct two 2' X 4' walls and finish with various types of joints. Requires:

water, one cubic foot measuring box, shovel, machine mixer or mortar box and hoe, lime, cement, sand, trowel, mortarboard, bricks (50 to 75), concave sled runner, concave "S" jointer, "V" shape sled runner, "V" shape "S" jointer.

SUPPLEMENTARY REFERENCES:

Concrete Masonry Handbook. pp. 136-138.

I.M.A.T. Brick and Block Construction. pp. 51-52.

MODULE TITLE: Brick and Block

NUMBER IN SERIES: 4th of 23

NEW VOCABULARY WORDS: 5

GOAL: The student will be able to identify the characteristics of brick and block and the uses of each.

PERFORMANCE INDICATORS: The student will complete an Assignment and a Self and Post Assessment.

OVERVIEW AND SUGGESTIONS: If possible, a field trip should be taken to complete number 3 on Assignment. Trip should be taken after completion of Modules 5 and 13. Students can also look for different types of bonds and brick stains.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The Assignment sheet requires the student to answer questions and to make a report to the instructor.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. pp. 95-116.

MODULE TITLE: Bonds

NUMBER IN SERIES: 5th of 23

NEW VOCABULARY WORDS: 3

GOAL: The student will be able to lay out and identify various bonds.

PERFORMANCE INDICATORS: The student will practice layout and identification of different bonds, and will complete a Job Sheet and a Self and Post Assessment.

OVERVIEW AND SUGGESTIONS: The Job Sheet should be completed outside or over a tarp. After work is complete, tear down walls and remove all mortar from bricks. This module may be done after Module 6 so work will be level and plumb.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to construct a 2' X 4' wall using one of the bonds listed. Requires:

water — 50 to 75 bricks
shovel
machine mixer or mortar box and hoe
lime
cement
sand
trowel
mortarboard

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. pp. 53-61.

MODULE TITLE: Level and Transit

NUMBER IN SERIES: 6th of 23

NEW VOCABULARY WORDS: 2

GOAL: The student will be able to explain the use of the transit and level.

PERFORMANCE INDICATORS: The student will complete a Job Sheet and a Self and Post Assessment.

OVERVIEW AND SUGGESTIONS: On Job Sheet, bricks may be wet down with water. This will slow down the moisture absorption, giving the student more time to adjust the units. Tear down project and clean all mortar off bricks. Work should be done outside or over a tarp. Floor or footing should be level.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to build a 2' X 4' wall, keeping it level and plumb. Requires:

- 4' level
- water
- lime
- cement
- sand
- machine mixer
- mortar box and hoe
- mortarboard
- trowel
- 50 to 75 bricks

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. pp. 122-124.

MODULE TITLE: Layout

NUMBER IN SERIES: 7th of 23

NEW VOCABULARY WORDS: 3

GOAL: The student will explain and demonstrate the procedure for the layout of a project.

PERFORMANCE INDICATORS: The student will be able to lay out a project, will do a Job Sheet, and will complete a Self and Post Assessment.

OVERVIEW AND SUGGESTIONS:

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to lay out a project. Requires:

chalkline

20 to 30 8"-blocks

25 ft. tape measure

chalk or heavy duty pencil

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. pp. 181-182.

MODULE TITLE: Squaring

NUMBER IN SERIES: 8th of 23

NEW VOCABULARY WORDS: 0

GOAL: The student will be able to explain and demonstrate the different procedures and techniques for squaring a project.

PERFORMANCE INDICATORS: The student will demonstrate different procedures for squaring a project by completing two tasks on a Job Sheet, and will complete a Post Assessment.

OVERVIEW AND SUGGESTIONS:

Work may be done at desk or in groups.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to square corners using two different methods. Requires:

tape measure

steel square or 1" X 1" X 2' slats of wood

SUPPLEMENTARY REFERENCES:

"Masonry Simplified". p. 35.

"Carpenters and Builders Library". p. 95.

MODULE TITLE: Leads

NUMBER IN SERIES: 9th of 23

NEW VOCABULARY WORDS: 5

GOAL: The student will be able to build a lead to correct length and height.

PERFORMANCE INDICATORS: The student will be able to build a lead properly and will complete a Self and Post Assessment.

OVERVIEW AND SUGGESTIONS: Mortar should be a little stiffer than usual for blocks to assist in obtaining proper heights. Bricks should be wet down to slow down the moisture absorption, giving the student more time to adjust the units. Tear down and clean all mortar off of bricks. Work should be done outside or over a tarp.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to build a lead. Requires:

1" X 2" X 10' piece of wood

spacing rule

150 bricks

water

shovel

machine mixer or
mortar box and hoe

lime, cement and sand

trowel

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction.

MODULE TITLE: Grouting and Reinforcing

NUMBER IN SERIES: 10th of 23

NEW VOCABULARY WORDS: 5

GOAL: The student will be able to grout and reinforce walls and be able to identify different kinds of reinforcement.

PERFORMANCE INDICATORS: The student will complete a Job Sheet and a Self and Post Assessment.

OVERVIEW AND SUGGESTIONS: After Job Sheet is completed, save wall (to be used in Modules 14 and 15).

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to build and reinforce a wall. Requires:

25 8"-blocks

water

shovel

machine mixer or
mortar box and hoe

lime, cement, sand

trowel

pea-gravel

4 - #4 steel bars, 39" long

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. pp. 220-274.

Concrete Masonry Handbook. pp. 39-40.

MODULE TITLE: Ties and Anchors

NUMBER IN SERIES: 11th of 23

NEW VOCABULARY WORDS: 5

GOAL: The student will be able to identify different types of ties and anchors and explain the use of each.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Wall should be saved, to be used in Modules 14 and 15.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to build and tie a block wall.

Z ties

truss ties

water

shovel

machine mixer or
mortar box and hoe

lime, cement, sand

trowel

mortarboard

35 to 40 blocks

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. pp. 76-91.

Duro Wall - Pamphlet #4.

MODULE TITLE: Masonry Saw, Cutting Brick and Block Units

NUMBER IN SERIES: 12th of 23

NEW VOCABULARY WORDS: 2

GOAL: The student will be able to operate a masonry saw and also cut units using a hammer and brick set.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Using a hammer and set, goggles should be worn at all times. When using the masonry saw, it should be used outside or in a very well ventilated area. Goggles are also required.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to make cuts using different methods.

Requires:

- hammer
- brick set
- masonry saw
- 8" block
- brick
- tape measure
- pencil

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. pp. 69-75, 128-129.

MODULE TITLE: Cleaning Brickwork

NUMBER IN SERIES: 13th of 23

NEW VOCABULARY WORDS: 0

GOAL: The student will be able to identify and clean common masonry stains.

PERFORMANCE INDICATORS: The student will complete a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Field trip may be taken in combination with Modules 4 and 5.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The Assignment sheet requires the student to answer questions and to identify different types of stains.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. pp. 198-205.

MODULE TITLE: Rotary Hammer

NUMBER IN SERIES: 14th of 23

NEW VOCABULARY WORDS: 0

GOAL: The student will be able to assemble and operate a rotary hammer.

PERFORMANCE INDICATORS: The student will complete a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: For Job Sheet, use walls saved in Modules 10 or 11. Save one wall for Module 15.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to drill holes into and tear down masonry walls. Requires:

masonry wall
carbide bits
chisel bits
rotary hammer

SUPPLEMENTARY REFERENCES:

Bosch Power Tool Pamphlet. pp. 3-10.

MODULE TITLE: Pneumatic Hammer

NUMBER IN SERIES: 15th of 23

NEW VOCABULARY WORDS: 1

GOAL: The student will be able to assemble and demonstrate the correct use of a pneumatic hammer.

PERFORMANCE INDICATORS: The student will complete a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Tear down a wall saved from either Module 10 or 11. Because of the weight of the hammer, this Job Sheet may or may not be used.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to tear down a wall using the pneumatic hammer. Requires:

pneumatic hammer
compressor
hoses and chisels (chucks)
goggles
ear protection

SUPPLEMENTARY REFERENCES:

"Construction Tools" (Pamphlet)

MODULE TITLE: Stone

NUMBER IN SERIES: 16th of 23

NEW VOCABULARY WORDS: 3

GOAL: The student will be able to lay different types of stone and know the characteristics of those types.

PERFORMANCE INDICATORS: The student will complete a Self Assessment, a Job Sheet, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS: When choosing the 4 stones for the Assignment, pick stones that are commonly used in your area. When building the wall for the Job Sheet, use stiff mortar; also use caution, as stones may slip, causing the wall to collapse.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The Assignment requires the student to identify the stones and look for them on or off construction sites. Requires:

4 different types of stone

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to build a 3' X 3' stone wall. Requires:

trowel

hammer

tuck pointer

stone

water

lime, sand, cement

machine mixer or
mortar box and hoe

shovel

SUPPLEMENTARY REFERENCES:

"Lane Community College Bricklaying Apprenticeship Correspondence Course."
Lesson 5, pp. 73-75.

MODULE TITLE: Caulking

NUMBER IN SERIES: 17th of 23

NEW VOCABULARY WORDS: 1

GOAL: The student will be able to work a caulking gun and explain where and why caulk is used.

PERFORMANCE INDICATORS: The student will complete a Job Sheet and a Self and Post Assessment.

OVERVIEW AND SUGGESTIONS: Half barrel caulking gun is sufficient for Job Sheet because knife and full barrel caulking is seldom used anymore except on larger construction.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to use a caulking gun. Requires:

caulking gun (full or 1/2 barrel)
caulking knife (putty knife, spatula, etc.)
caulk (knife and gun grade)
stiff brush
rag and mineral spirits

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. pp. 210 and 215.

MODULE TITLE: Codes

NUMBER IN SERIES: 18th of 23

NEW VOCABULARY WORDS: 4

GOAL: The student will be able to identify types of codes and explain the purpose for them.

PERFORMANCE INDICATORS: The student will complete an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS: This module may be explained by a guest speaker. (Building inspector, etc.)

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The Assignment sheet requires the student to write out codes and explain why they are important. Requires:

revised addition U.B.C.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None

SUPPLEMENTARY REFERENCES:

"Uniform Building Code" (State of Oregon or applicable state)

MODULE TITLE: Fireplace Footings

NUMBER IN SERIES: 19th of 23

NEW VOCABULARY WORDS: 2

GOAL: The student will be able to explain why a footing is structurally sound and will demonstrate the procedure.

PERFORMANCE INDICATORS: The student will complete an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Many builders use zero-clearance units in houses. Foundations are not required for these units. It may be necessary to contact a masonry contractor for the visit required by the Assignment.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The Assignment sheet requires the student to write or discuss differences in footings.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. Vol. III. pp. 210 to 212.

Uniform Building Code. Chapter 37.

MODULE TITLE: Fireplace Firebox

NUMBER IN SERIES: 20th of 23

NEW VOCABULARY WORDS: 2

GOAL: The student will be able to build a firebox with the correct type of bricks.

PERFORMANCE INDICATORS: The student will complete a Self Assessment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Because there will be no heat involved, the firebricks can be laid without fireclay (mortar). After the firebox has been built, save for the Job Sheet in Module 21.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to build a firebox. Requires:

firebricks
masonry saw
tape measure
pencil
straightedge

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. Vol. III. pp. 226-234.

Uniform Building Code. (Chapter 37)

MODULE TITLE: Fireplace Smokeshelf

NUMBER IN SERIES: 21st of 23

NEW VOCABULARY WORDS: 3

GOAL: The student will be able to identify the purpose and the placement of the smokeshelf and will construct a smokeshelf.

PERFORMANCE INDICATORS: The student will complete a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: The back of the firebox should be parged to prevent movement. Mortar for parging should be a little more wet than when used for brick. After constructed, it should be torn down and all mortar removed from bricks.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet requires the student to build a false wall and a smokeshelf.

Requires:

firebox built in previous module
common bricks (250)
water
lime, cement, sand
trowel
shovel
machine mixer or
mortar box and hoe
mortarboard
tape measure

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. pp. 234.

Uniform Building Code. (Chapter 37)

MODULE TITLE: Flashing

NUMBER IN SERIES: 22nd of 23

NEW VOCABULARY WORDS: 1

GOAL: The student will be able to install flashing on a chimney and explain the purpose of flashing.

PERFORMANCE INDICATORS: The student will complete a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Care should be taken in handling flashing because of the sharp edges.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet will require the student to flash a chimney. Requires:

roll of flashing

tin snips

straightedge.

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. pp. 260-262.

MODULE TITLE: Artistic Masonry

NUMBER IN SERIES: 23rd of 23

NEW VOCABULARY WORDS: 3

GOAL: The student will be able to identify different types of artistic masonry and be able to explain the basics of how the work is done.

PERFORMANCE INDICATORS: The student will complete a Self Assessment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: If the student decides to build an arch, piers or supporting walls must be sturdy or tied to a supporting wall so that the form may be pulled. Before pulling form, let brickwork set up, but not hard enough to cause jointing to be difficult.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The Job Sheet will require the student to build either a serpentine wall or an arch. Requires:

- 250 bricks
- ruler
- pencils
- plywood
- 2 X 6 lumber
- nails
- water
- shovel
- machine mixer or mortar box and hoe
- lime, cement, sand
- trowel

SUPPLEMENTARY REFERENCES:

I.M.A.T. Brick and Block Construction. (Vol II and III)

Vol. II. pp. 82-146.

Vol. III. pp. 3-28.

BIBLIOGRAPHY

THE BRICKLAYER--BRICK AND BLOCK CONSTRUCTION
Randolph and Taylor
International Masonry Apprenticeship Trust
815 Fifteenth St. N.W.
Washington, D.C. 20005

A thorough three-volume set, covering all phases of brick and block construction. Specifies trade standards, industry practices; contains supporting tables of data, how-to processes, etc. Good line drawings; could be more "how to" drawings for pre-apprenticeship level.

BRICKLAYING CURRICULUM
AGC/Stillwater
AGC of America
1957 E St., N.W.
Washington, D.C. 20006

Covers most phases; contains project sheets, etc. Very good material, but requires knowledgable instructor to lead students through the outline. Graphics are plentiful, but quality isn't the best.

MODERN MASONRY
Clois Kicklighter
Goodheart-Willcox Co., Inc.
South Holland, Ill

Discusses brick, block, stone, concrete, all materials, bonds, sizes, mortars,

tools, equipment, safety, work processes. Good reference; readable, understandable. Goes beyond pre-apprenticeship a little, but is still good for most students. Has many photos and line drawings which aid in understanding.

MANUFACTURERS' INFORMATION:

Bosch, Goldblatt, Racine, etc. Catalogs listing specs, uses, optional accessories, etc. Manufacturers' and parts catalogs render excellent graphics, sizes. Many show photographs of the tool or piece of equipment in actual use. Available from masonry supply stores or manufacturer representatives.